

REMARKS

The examiner objected to the drawings and requested that amended figure be submitted. The basis for the objection was that the MMSE equalizer inputs and outputs were not shown in the drawings. The objection should be withdrawn. First, it is conventional to show such figures in block format, and provide the details of operation in the specification, as is done in this case. Not every detail of operation of an equalizer need be shown in the drawing. Second, the exact variables for the input and output estimates are labeled on the drawing figure at the outputs and inputs of the MMSE 22. Thus, the objection is not understood, and is not well-founded.

Regarding claims 12, line 5, the reference character for the transmittal signal has been fixed. In claims 12 and 13, the output distribution of estimates has been made clear by amendments and is consistent now in both claims. Regarding claim 13, the examiner had questions about excluding single value estimates. This question is also applicable to claim 5. The examiner's question indicates a failure to appreciate that $\pi_{IN}^E[n]$ is a sequence of values, and not just a single value. When computing the $\hat{b}[n_0]$ each of the received values $\pi_{IN}^E[n]$ is used except for a single term, which is the $\pi_{IN}^E[n_0]$, which is excluded from the computation of $\hat{b}[n_0]$. The value is available, but is intentionally excluded to improve performance, which can be demonstrated mathematically and experimentally. Regarding "distributed about the symbol values", this indicates, as would be understood by an artisan, that the output distribution for the estimates are conditionally Gaussian and random variable with means-values equal to the symbol values. Regarding "expectations are taken over a distribution of symbols", that expectation is a precise mathematical expression given by the integral over all possible estimate values and all possible noise values of the value of the estimate times the probability of the estimate and the particular noise value. This would be understood by artisans as it is a principal of probability theory for the definition of "expectation of a random variable".

In claim 14, the preamble has been fixed. However, it is noted that firmware in a software base devices may conduct steps in making that computations, and it is permissible to list the steps conducted by such devices. Regarding "given the observations", the statistical quantity of an expectation can be computed either with or without given information. When data is "given", then a "conditional expectation" results. Artisans would understand this as this is the probability theory for the concept of a "conditional expectation" and the mathematical use of the word "given", in this context. Regarding "the expectation", the article has been removed to address any possible antecedent objections. Expectations have been explained above.

For all of the above reasons, the application is believed in condition for allowance and notice of the same is respectfully requested. Should there be any further outstanding issues, the examiner is invited to contact the undersigned attorney at the below-listed number.

Respectfully submitted,

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